calculation to become acquainted with the fact that about 2000 years ago this period of invisibility occurred nearly a month earlier.

A very interesting point relating to the Pleiades is the great number of different names which have been applied to them, and also the curious myths which have arisen from time to time. A most interesting account of these has recently been published by M. Richard Andrée,[1] who has brought together a mass of matter relating to both names and myths. First, with regard to the names which were used when referring to the cluster. The general words defined them as a heap, troop, host of dancers, sieve, &c.; sometimes the simple word "many" was adopted. One finds them spoken of as herds, or hosts of animals, birds, such as hen with chickens, parrots, doves, &c. The simplest expressions really used meant "mass," and an examination of the records confirms this view.

In observing the Pleiades anyone would remark how closely they are packed together. This closeness led early peoples, no doubt, to refer to them as a host or herd of animals, and hence the well-known name, "the hen with her chickens."

Among many foreign names for this, we have in German, Der Glucke mit ihren Küchlein; in Danish, aftenhöne (evening hens); in French, la poussinière; in Italian, gallinette, &c. Instead of a host of animals, we have a host of people referred to, such as, for instance, in the Solomon Islands, where they are called "togo ni samu," meaning a company of maidens. The North American Indians have also known them under the name of "dancers."

It may be thought that a natural name by which they would be known would give some idea of the number of stars in the group; this was often the case, only with different names, for a very good pair of eyes could distinguish seven stars, while generally only six were counted. The word for the Pleiades, for instance, in old high German was "thaz sibunstirri" (seven stars), while that of the South Americans, "cajupal," meant six stars. Again, in Cook's Islands the word "Tau-ono" (six) was used, while the Greeks had a special name for *each* of the seven stars.

Seeing that so much importance has been attached to the Pleiades by peoples of all countries, it is natural to find that the number of myths is by no means few; this is shown to be the case by examining the records of the ancient Greeks, the peoples from East Asia, South Sea Islands, America, &c.

To describe a few briefly, let us refer first to that which we owe to the Greeks. The Pleiades in this myth were the daughters of Atlas and Pleione, each one of which bore a separate name. The Hyades, for sorrow at the death of their sisters, or, as others say, at the destiny of their father, Atlas, killed themselves and became fixed as a constellation in the heavens. Another myth, by Pindar, describes them as the comrades of Artemis, who were turned into doves, and eventually into stars.

A myth of much interest is that of the Dyàks, and the Malays of Borneo. They say the Pleiades were six chickens followed by their mother, who remained always invisible. At one time there were seven chickens in all. One chicken paid a visit to the earth, and there received something to eat, at which the hen got so angry as to threaten to destroy both the chicken and the people on the earth. Fortunately the latter were saved by the constellation of Orion, leaving only six chickens in the brood. At that period of the year when the Pleiades are invisible, the Dyaks say that the hen broods her chickens, while at the time of visibility "the cuckoo calls."

The South Sea islanders have a myth which has some originality about it. It is to the effect that the Pleiades were originally a single star, which shone with such a clear lustre as to incur the envy of the god Tane, who was in league with the stars Aldebaran and Sirius, and followed the Pleiades. Trying to save himself in a stream, the course of which Sirius had so diverted as to bring him close to Tane again, he was broken up into six bright stars by Tane himself, who hurled Aldebaran at him.

The blacks of Victoria, Australia, have a myth in which the Pleiades are considered a host of young wives who play with the young men. The myth of the Kamilaroi blacks is as follows: The Pleiades were once pretty maidens on the earth, who were followed by some young men called the Beriberi. To get away from the latter the girls climbed trees, and thence sprang into the heavens, where they were transformed into shining bodies; one maiden who remained behind was termed "gurri gurri," the shy one, and she is represented by the least bright star in the group. The Beriberi were eventually placed in the heavens, where they appear in the girtle and boomerang in the constellation of Orion.

These and many other myths, all of great interest, are mentioned by M. Andrée. They inform us to a certain extent of the characters of the different nations. Much might be learnt also about the origin of the various tribes of people, by seeing if the different myths can be traced back to an initial one. Those of the North American tribes, for instance, seem to have a common origin. In some instances the Pleiades were undoubtedly looked upon as a god who, besides regulating the year and looking after the fruitfulness, was the ruler of all meteorological and astronomical appearances. Hesiod refers to the rising of the Pleiades as the time for harvest, while the period about which they disappeared for some time he termed ploughing time. Forty days and nights were they invisible, appearing again only as soon as the sickle was sharp. Another very well-known use made of the visibility and invisibility of the Pleiades was the regulation of the traffic of ships in Greece, hence probably the Greek word for to sail, πλεειν. The rising of this group of stars was the commencement, so to speak, of the shipping season, their disappearance denoting its conclusion. At Rome, also, the same practice was in vogue.

Enough has been said to attract the reader's attention to some of the numerous interesting references about this group of stars. The nineteenth century has already seen the end of many a myth which has been solidly upheld; but as science advances, facts take the place of myths, and although much of the romance may appear to be lost, one always looks back at them with delight. Few stars, perhaps, have been so shrouded in myth as the Pleiades, and the unravelment of these myths has been the source of pleasure to many.

NOTES.

A MEETING of the International Meteorological Committee has been arranged to take place at Upsala, commencing August 20. Since the meeting at Munich in 1891, four new members have been added to the committee—Mr. William Davis, Cordoba; Mr. John Eliot, Calcutta; Mr. R. L. J. Ellery, F.R.S., Melbourne; and Dr. A. Paulsen, Copenhagen. The last named has replaced Dr. Lang, Munich, who died last year.

THE arrangements for the sixth session of the International Geological Congress have now been made. The meeting will be held at Zurich, from August 29 to September 2. The president is Prof. E. Renevier; Prof. A. Heim is vice-president, and Prof. H. Golliez, of Lausanne, is secretary. The subscription is twenty-five francs, which should be sent to M. Casp. Escher-Hess, Bahnhofstrasse, Zurich. In addition to the ordinary work of the congress, special meetings will be held for the discussion of questions relating to (*a*) general geology, tectonics, &c.; (*b*) stratigraphy and palæontology; (*c*) mineralogy and petrography. Numerous excursions have been planned; six, before the congress, to different parts of the Jura, and six, after the congress, to various districts of the Alps; three supplementary excursions are also proposed. Mr. W. Topley (28, Jermyn-street, London), who acted as general secretary to the London Congress in 1888, will be glad to receive subscriptions or to give information.

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[1] See *Globus*, Bd. lxiv. No. 22, "Die Plejaden im Mythus und in ihrer Beziehung zum Jahresbeginn und Landbau."

A MEETING to consider the question of raising a memorial to the late Prof. Arthur Milnes Marshall, F.R.S., was held at the Owens College on Friday last. Mr. Edward Dormer (deputy-treasurer of the College) presided, and there were present, amongst others, Principal Ward, Profs. Boyd Dawkins, Osborne Reynolds, Schuster, Weiss, Leech, Herdman, and Dixon, Dr. Hurst, Messrs. R. D. Darbishire, Forbes Carpenter, R. Assheton, F. W. Gamble, and W. E. Hoyle. The meeting was addressed by Principal Ward, Mr. Darbishire, and others, and it was decided to form a committee to formulate a scheme, and submit it to a future meeting. Although no definite decision as to the nature of the memorial was arrived at, the general sense of the meeting seemed to be in favour of a fund to maintain Prof. Marshall's library, which has been generously presented to the College by his family.

H.R.H. THE DUKE OF CAMBRIDGE has accepted the presidency of a committee which has been formed to present a testimonial to Dr. W. H. Dickinson on his retirement from the office of senior-physician to St. George's Hospital, of which his Royal Highness is a vice-president. Among the members of the committee are the Duke of Westminster, the Earl of Cork and Orrery, Mr. Shaw Stewart, and Colonel Haygarth, vice-presidents of the hospital; Mr. J. R. Mosse, treasurer; Sir Henry Acland, Admirals Sir George Willes and Sir W. Houston Stewart, Sir George Humphry, Sir Francis Laking, Surgeon-General Cornish, and a number of Dr. Dickinson's past and present colleagues, and pupils and former students of the St. George's Medical School.

THE death is announced of Brigadier-General J. Ammen, who for some years held the Chair of Mathematics in Bacon College, Georgetown, Kentucky, and that of Jefferson College, Mississippi.

THE Right Hon. Sir Harry Verney, whose death, at the age of ninety-two, occurred on Monday last, was the "father" of the Royal Agricultural Society of England—an institution which he assisted to establish in 1838.

LORD PLAYFAIR has selected "The Modern Needs of Scientific Teaching" as the title of his address to the students of the London Society for the Extension of University Teaching, at the Mansion House, on Saturday, March 10.

MR. HOLBROOK GASKELL having contributed £1000 to complete the endowment of the Chair of Botany at Liverpool University College, the college council have decided to confer the professorship upon Mr. R. J. Harvey Gibson, who has held the lectureship in botany during the last five years.

THE Council of the Royal Meteorological Society have arranged to hold an exhibition of instruments, photographs, and drawings relating to the representation and measurement of clouds, next April. The Exhibition Committee invite cooperation, as they are anxious to obtain as large a collection as possible of such exhibits. The committee will also be glad to show any new meteorological instruments or apparatus invented or first constructed since the exhibition of 1892, as well as photographs and drawings possessing meteorological interest.

AMONG the documents in the possession of the Anthropological Institute are a considerable number of MS. vocabularies, in many cases unique in their character. As it has never come within the scope of the Institute to devote a large portion of its *Journal* to the publication of such material, a fund is being raised by subscription, independently of the Institute, to deal with these documents. The subscription is one guinea, payable in alternate years, and the first vocabulary to be published will be one of the Ipuriná Language (Upper Purus River), South America, by the Rev. J. E. R. Polak.

WE learn from the *Kew Bulletin* for February that an excellent portrait of Prof. Oliver, F.R.S., the late keeper of the Herbarium and Library of the Royal Gardens, Kew, has been painted by Mr. J. Wilson Foster (who also painted the portrait of the present keeper, Mr. J. G. Baker, F.R.S., exhibited at the Royal Academy in 1893). Prof. Oliver's portrait was commissioned by a number of his scientific and other friends, who have presented it to the Herbarium of the Royal Gardens—the scene of his labours from 1858 to 1890.

AN appeal for assistance has been issued by the committee of the Bethnal Green Free Library, there being a deficit of £200 on the last financial year, while the outlay of the present one is calculated to reach £1,000. The work that this institution is doing is an excellent one, and the fact that no less than 50,000 persons attended the library and classes, &c. in connection with it, and 27,000 the Gilchrist Educational Trust Lectures, tells it is filling a real want. It will be a pity if such a good work should languish for want of funds, subscriptions towards which may be sent to Mr. G. F. Hilcken, the secretary and librarian, Bethnal Green Free Library, London, E.

THE *Academy* says that the Hon. Walter Rothschild proposes to publish a periodical in connexion with his Museum at Tring, under the title of *Novitates Zoologicae*. It will contain papers on mammals, birds, &c., and also discussions on general questions of zoological or palæontological interest. Descriptions of new species will be confined almost entirely to those of which the types belong to the Tring Museum; and the other articles will, for the most part, be founded on work carried on at that museum, or on specimens sent by Mr. Rothschild's collectors.

MR. LLOYD BOZWARD, writing to us from Worcester, says that on the 6th instant, shortly after noon, he saw a large meteor of great brightness near the zenith. At the time of the occurrence, the sun was brilliantly shining in a clear blue sky. A remarkable feature was the intensity of the light of the meteor. According to Mr. Bozward, this, if not exceeding the radiance of the sun, was certainly equal to it. The meteor was also seen at Birmingham, several observers comparing its light to that given by the electric arc, while others say that it was of a vivid green colour.

THE Royal Society of New South Wales offers its medal and £25 for the best communication (provided it be of sufficient merit) containing the results of original research or observation upon each of the following subjects, to be sent in not later than May 1, 1894:—On the timbers of New South Wales, with special reference to their fitness for use in construction, manufactures, and other similar purposes; on the raised sea-beaches and kitchen middens on the coast of New South Wales; on the aboriginal rock carvings and paintings in New South Wales. To be sent in not later than May 1, 1895:—On the silver ore deposits of New South Wales; on the physiological action of the poison of any Australian snake, spider, or tick; on the chemistry of the Australian gums and resins. To be sent in not later than May 1, 1896:—On the origin of multiple hydatids in man; on the occurrence of precious stones in New South Wales, with a description of the deposits in which they are found; on the effect of the Australian climate on the physical development of the Australian-born population. The competition is in no way confined to members of the Society, nor to residents in Australia, but is open to all without any restriction whatever, excepting that a prize will not be awarded to a member of the Council for the time being; neither will an award be made for a mere compilation, however meritorious in its way. The communication, to be successful, must be either wholly or in part the result of original observation or research on the part of the contributor. The successful papers will be published in the Society's annual volume. Competitors are requested to write upon foolscap paper, on one side only. A motto must be used instead of the writer's name, and each paper must be accompanied by a sealed envelope bearing the motto outside, and containing the writer's name and address inside. All communications to be addressed to the honorary secretaries, Messrs. T. W. E. David and J. H. Maiden, at the Society's House, Sydney.

A very severe gale reached the coast of Ireland from the Atlantic on the evening of Sunday the 11th instant, the centre of which passed over Scotland; much snow fell there during the passage of the storm, and the barometer reading was as low as 28·2 inches. The force of the gusts reached 10 to 11 of the Beaufort wind-scale (0–12), and owing to the steepness of the barometric gradients the storm was felt over all parts of England, and caused much damage both at sea and on land. At Greenwich, which was about 300 miles from the centre of the disturbance, the anemometer registered a pressure of more than 35 lbs. on the square foot, being equal to an hourly velocity of about 85 miles. In connection with these values it may be interesting to state that in the gale of December 12 the wind at Greenwich attained a pressure of 37 lbs. on the square foot; but in the great storm of November last it did not there exceed 17 lbs. By Monday, the 12th instant, the centre had passed over the North Sea, and the barometer near Christiania had fallen below 28 inches, gales being experienced from the coast of Ireland to the Baltic. In the rear of the disturbance the temperature, which had been unusually high for the time of year, fell considerably, frost occurring in many parts of Great Britain on Monday night.

With reference to the above gale, Dr. Buchan writes that at Edinburgh a remarkable fall of the barometer commenced at 5 a.m. on Sunday last, and 2 a.m. on Monday the low reading of 28·319 inches at 32° and sea-level was registered. An unusually rapid rise then set in, and in the one hour from 4 to 5 a.m., pressure rose 0·307 inch, as recorded by Richard's barograph, controlled by readings with the mercurial barometer. The traced line of the barograph was clear and distinct, giving little if any indication of "pumping." Consequent on a change of wind from east-south-east to south-west, Richard's thermograph registered a rise of temperature from 37°·5 to 48°·0, or 10°·5 in the seven minutes ending 1.10 p.m. on Sunday. The fluctuations of Richard's hygrograph early in the morning of Monday were equally striking.

An exceptionally heavy storm was experienced in America from Sunday to Tuesday last. At Chicago the velocity of the wind was estimated at seventy-five miles an hour, and the streets were blocked with snow; while at New York the snowfall is reported as the heaviest this season. The Atlantic coast was also swept by a fierce wind.

The Meteorological Council have published, as an Appendix to the *Weekly Weather Report* for 1893, a summary of rainfall and mean temperature for twenty-eight years, 1866–1893. The values are given for each of twelve districts, together with the means for the easterly, or principal wheat-producing districts, for the westerly, or principal grazing, &c., districts, and for the whole of the British Islands generally. These summaries have been published regularly since 1868, and, although chiefly intended for sanitary and agricultural purposes, they furnish a very easy and trustworthy means of comparing the climatological statistics of different periods or districts. A glance at the rainfall values for the year 1893 shows that they were below the average in every district except the north of Scotland, where the rainfall was as much as 13 inches above the normal amount, being higher than in any year since 1868, and chiefly owing to the areas of low barometric pressure taking a somewhat more northerly course than usual. The greatest deficiency—viz. 9·5 inches—was in the south-west of England, while the deficiency for the whole of the kingdom was 5·9 inches, which is greater than in any year since 1866, except the Jubilee year, 1887, when the deficiency was 9·2 inches. The temperature was above the mean in all districts; the excess over the whole kingdom was 1°·4, and it was fairly equally distributed over all districts; the excess has not been equalled since 1868, when it was 2°·0 above the normal value available at that date.

The first sheet of the "Geologic Atlas of the United States" has recently been issued. It is called the "Hawley Sheet," and comprises the north-west part of Massachusetts, with the Green Mountain Region. The geology is by B. K. Emerson. The scale of the map is 1 : 62,500, or slightly more than one inch to one mile. The complete map of the United States on this scale will be 240 feet long and 180 feet high. Contours are drawn at twenty feet intervals, reckoned from mean sea-level. Three copies of the map are given:—(1) Topography, with streams in blue, contours in brown. The hundred-feet contours are deeply engraved, the intermediate lines being only faintly marked. This gives the appearance of hill-shading over the mountainous ground, but each contour can be traced with the aid of a pocket lens. (2) Areal geology, in which the formations are coloured over the brown, blue, and black of the topographical map. (3) Economic geology, which appears, so far as this sheet is concerned, to differ from the other geological map only in having the tints less pronounced, and in having a sign for mines and quarries. The fourth sheet is entitled "Structure Sections": here strips of the map are reproduced, but without contours, and sections along the edge of each strip are drawn on the natural scale. Three sheets of text are given, one, introductory, setting out the purpose and plan of the Atlas, the others descriptive of the geology of the "Hawley Sheet." All the rocks consist of crystalline schists of Cambrian and Silurian age, no igneous rocks which can be recognised as such occur. Probably the Silurian "Hawley schist" is largely composed of eruptive material, but the rock is so much altered that its original character cannot be made out. The drift deposits, which in the south-eastern part greatly obscure the geology, are described, but are not shown on the map.

The proposals which have lately been made for the renewal of Antarctic research have been very widely echoed, and several geographical journals have given considerable space to the matter. Dr. Neumayer, the greatest continental authority on the subject, devotes the first place in the *Annalen der Hydrographie* to a review of the facts. He translates the abstract of Dr. Murray's paper, given in Nature for November 30, 1893, and expresses hearty approval of the scheme of an Antarctic expedition there set forth. The *Scottish Geographical Magazine* for February contains a further account of last year's Dundee Antarctic expedition.

Authentic information as to the reported high latitude (84° N.) attained by the American whaler *Newport* is at last available in the new number of the *Bulletin* of the American Geographical Society. A quotation from a letter written by Prof. George Davidson, of San Francisco, runs: "The captain has been in to see me, and has given me some graphic descriptions of his actual experience in those waters. . . . But he reached only 73°, and is dreadfully annoyed that the newspaper reporter made such an erroneous statement when he had the truth before him." It is unfortunate that the news agency which cabled the invention to this country did not consider it worth while to give notice of the correction, for the record of farthest north has been altered in some books of reference, and there is now no chance for the sober truth being accorded a tithe of the publicity given to the sensational report.

AT the meeting of the Royal Geographical Society, on Monday evening, a paper on Johore was read by Mr. Harry Lake, who for three years has been engaged in exploring and surveying the interior of this little-known State. Johore occupies the southern extremity of the Malay peninsula, and the interior consists of low tropical jungle and swamp, diversified occasionally by undulating or mountainous country. The rainfall is excessive, but the great lake of Bera or Tasek, which was represented in former maps, turned out to be merely a vast swamp. The Blumut Mountains in the interior formed one of the most interesting features of the exploration, and the primitive people of the interior, the Jakuns, have been studied with some care. Under its present Sultan, Johore has made great strides in political and economic progress. The chief exports are gambier and pepper, which are cultivated by Chinese labour.

THE question whether "beats" due to the interference of two nearly equal sounds can originate in the brain instead of in the air outside, is discussed by Karl L. Schaefer in the *Zeitschrift für Psychologie und Physiologie der Sinnesorgane*. It is well known that two tuning-forks producing beats continue to produce them when one fork is held to the right, and the other to the left ear, in such a manner that the sound cannot reach the other ear through the air. Wundt himself, in his *Philosophische Studien*, declared the direct cerebral origin of beats to be possible, and connected it with the recently proved possibility of a direct stimulation of the auditory nerve-trunk. Herr Schaefer, on the other hand, does not think that such an origin of beats can be deduced from the experiment quoted. He looks upon conduction by the bones of the skull as the cause of the phenomenon observed. This is confirmed by the fact that even the faintest sounds are capable of propagation from one ear to the other by conduction through the bones. It is generally acknowledged that this is the explanation of beats produced by strong notes. Whether the same applies to faint notes can only be finally decided by determining, with more delicate instruments than any hitherto used, whether beats continue to be heard after conduction through the bones has ceased.

AT a recent meeting of the Société Francaise de Physique, M. Hurmuzescu showed several instruments which he has employed in his experiments on static electricity, the insulating medium being a new material to which he has given the name dielectrine. This substance consists of a mixture of paraffin and sulphur, and is preferable to either of these insulators, as it is harder and has a higher melting-point than pure paraffin, and is less hygroscopic and brittle than sulphur. By means of a special method it is possible to obtain dielectrine in homogeneous masses which are very hard, and can be easily worked either in the lathe or with a file. One of the instruments shown was an electrophorus, the handle of the metallic plate and the disc which is electrified being composed of dielectrine. With this instrument sparks 2 c.m. long were obtained even when the air was moist, while the charge was retained for a very long time. This new substance, which experiment has shown to be very unalterable, will be of great use as an insulator, particularly in damp situations.

HAVING carried on an elaborate series of experiments on the rotary dispersion of quartz in the infra-red part of the spectrum, M. G. Moreau is now investigating the magnetic rotary dispersion of carbon bisulphide for the same part of the spectrum. He has also measured the refractive index of carbon bisulphide for the infra-red rays, so that he may be able to compare his experimental values for the magnetic rotary dispersion with those obtained by the formula deduced by Maxwell's electro-magnetic theory. The magnetic field used in the experiments was produced by the large coil which Verdet used in his classic researches in this subject, its intensity being measured by the rotation produced in carbon bisulphide for sodium light. In the infra-red observations a thermopile and delicate galvanometer were employed. The author has succeeded in measuring the rotation for wave-lengths between 0·8 and 1·4 $\mu\mu$; the absorption of the CS_2 preventing any measurements being made for greater wave-lengths. The paper in which the above results are given will be found in the *Annales de Chimie et de Physique* for February.

THE annual report of Prof. Alexander Agassiz, as director of the Museum of Comparative Zoology at Harvard College, for 1892–93 has just been received; from it, amid many other interesting details, we learn that Prof. A. Milne-Edwards has in hand a final memoir on the Crustacea of the *Blake*, that Prof. Ludwig's monograph on the holothurians of the *Blake* will soon be published, the last plate of the nineteen being in the hands of Werner and Winter. As to Prof. Agassiz's own work we read: "For nearly thirty years since the publication of the catalogue of North American acalephs I have every summer, and frequently during the winter months, also, paid a good deal of attention to the jelly-fishes of our coast. An immense amount of drawings and of notes have thus been accumulated," and we have the hope expressed that during the coming year he may be enabled to arrange this valuable material for publication. We would join our hopes to his, and sincerely trust that the fascinations of fresh voyages of discovery may be for a time resisted, in order that the scientific world may not lose the record of so much important work, a record which Prof. Agassiz alone can give. The various reports of the various assistants are interesting, and show the large resources of the museum, which, large though the building is which contains it, now urgently calls for more space.

THE February number of *Nature Notes*, with which is now incorporated *The Field Club*, contains a note by Mr. W. M. E. Flower, on a tortoise or "gopher" that he brought over from Florida, last July, in a case of palmettoes and other plants. When the cold weather set in, the gopher made a burrow, in which it has lived until now, but whether it will survive the winter remains to be seen. It will be just as well perhaps if the English climate proves to be unfavourable to the animal, for in Florida gophers do an immense amount of damage to plants and crops, and thousands of pounds have been spent in destroying the pest.

PROF. BYRON HALSTED describes in the *Bulletin* of the Torrey Botanical Club for December 1893, the Solandi process of sun-printing and its application to botanical technique. The process consists briefly in exposing the subject, necessarily somewhat translucent, to the sunlight in a printing-frame in common use by photographers, with a sheet of sensitised paper at the back of the subject, in the same manner as a print is taken from a negative of the ordinary sort. The sun-print thus obtained becomes, after it has been toned, the negative from which the positive picture is printed. The negative is saturated with kerosene for the purpose of clarifying.

Mr. G. Nicholson, the curator of the Royal Gardens, Kew, contributes to the February number of the *Kew Bulletin* a report on horticulture and arboriculture in the United States. It contains accounts, among others, of visits to the following gardens:—Holm Lea, near Brooklime, Mass., the residence of Prof. C. S. Sargent; the Arnold Arboretum, of Harvard University, at Jamaica Plain, Mass.; the Missouri Botanical Garden at St. Louis; the Horticultural Exhibition at Chicago; the Mount Hope Nurseries at Rochester, N.Y.; and Meehan's Nursery, Germantown, Philadelphia. The paper also contains notes on railway gardening, and on the native flora of the districts passed through.

An interesting paper on the possible transmission of the tubercle bacillus by cigars, has appeared in the current number of the *Centralblatt für Bakteriologie*. Dr. Kerez, in the preface to his experiments, points out that ample opportunity is given for the infection of cigars with tuberculous material, as so many of the people employed in tobacco manufactories are known to suffer from consumption. The manner in which the cigars may become infected is apparent when it is remembered that by force of habit and convenience the tobacco-workers prefer to use their saliva for getting the leaves to adhere in cigar making, instead of the materials supplied to them for this purpose. In this way the tubercle bacillus is easily conveyed to the cigar. Dr. Kerez has, therefore, imitated in every detail on a small scale the manufacture of cigars, using saliva containing tubercle bacilli for the moistening of the leaves. After being dried and packed away in boxes, cigars preserved for different lengths of time were carefully unrolled, the leaves washed with water, and the infusion inoculated into guinea-pigs. In all cases where the infected cigars had only been kept for ten days, the animals treated with the tobacco infusion died of tuberculosis, but when the cigars were kept for longer periods the animals suffered no ill-effects, indicating that during this time the tubercle bacilli had either been destroyed or deprived of their virulent character. As long, therefore, remarks Dr. Kerez, as the cigars, presuming them to have been infected in the course of making, are kept for a sufficiently long time in the manufacturer's hands before distribution, this possibility of spreading consumption may be ignored.

A catalogue (No. vi.) of works on geology offered for sale by Messrs. Dulau and Co. has just been issued.

A cheap edition of "The Religion of Science," by Dr Paul Carus, has been published by the Open Court Publishing. Company, Chicago.

Messrs. Horne and Thornthwaite have published a new descriptive catalogue of astronomical telescopes and other optical instruments.

A second edition has been published of the catalogue of the Camera Club Photographic Library, compiled by Messrs. L. Clark and W. Brooks.

Messrs. Blackie and Son have published a guide to the examinations in elementary agriculture of the Department of Science and Art, and answers to the questions set in the subject from 1884 to 1893.

"A Short History of Astronomy," compiled by Mr. George Knight, and published by Messrs. G. Philip and Son, is a little book of twenty-seven pages, in paper covers, containing a sketch of the growth of astronomy suitable to beginners, and likely to create a desire for fuller knowledge.

The first edition of Mr. Bowen Cooke's work on "British Locomotives" being nearly exhausted, the publishers announce a second and revised edition as almost ready for issue. The same publishers (Whittaker and Co.) announce a work on "Surveying and Surveying Instruments," by Mr. G. A. T. Middleton.

We announced towards the end of last year that the *British Naturalist* would be discontinued after the December number. General regret having been expressed at the proposed discontinuance of that useful magazine, the opinions of some well-known naturalists were obtained, and with the result that arrangements were eventually made for carrying on the publication. The first number of the new series is before us, and its contents will be appreciated by the student of natural history and collector. Edited by Messrs. J. Smith and L Greening, and with the assistance of the late editor, Mr. J. E. Robson, and others, the magazine should have a wide circulation among naturalists in all parts of the country.

Messrs. Macmillan and Co. will publish immediately a volume of "Essays in Historical Chemistry," by Prof. Thorpe, based on lectures and addresses delivered during the last twenty years. The list of subjects includes Boyle, Priestley, Scheele, Cavendish, Lavoisier, Faraday, Thomas Graham, Wöhler, Dumas, Kopp, and Mendeleef.

Mr. Henry Louis has prepared, and Messrs. Macmillan and Co. are about to publish, a "Handbook of Gold-Milling," in which the subject is treated for the first time in a form at once scientific and practical. It is hoped that the book may be found useful not only for the technical instruction of mill-men, but also for the guidance of managers and managing directors of gold-mines. The work begins with an account of the physical and chemical properties of gold, and also of mercury; stamp-mill construction is considered in detail, the mechanical principles underlying the design of each part being throughout elucidated. The theory and practice of concentration, as far as it refers to gold-milling, is next considered, together with the most approved modern method of treating the concentrates and other products of milling. Chapters are appended on the economic considerations involved and on the assaying of gold ores and products. The book is fully illustrated.

Two new boron compounds, diphenyl boric acid and the corresponding chloride, have been obtained in the Rostock Laboratory by Prof. Michaelis, and an account of them, together with several other more complex aromatic derivatives of boron, is contributed to the latest issue of the *Berichte*. In the year 1879 Prof. Michaelis, in conjunction with Dr. Becker, succeeded in preparing phenyl boron chloride, $C_6H_5BCl_2$, the first boron compound containing a benzene radicle. This interesting substance, a liquid which boils at 175°, was obtained by heating together to about 200° in a sealed tube the corresponding quantities of boron chloride, BCl_3, and mercury diphenyl, $Hg(C_6H_5)_2$. Upon bringing it in contact with water a beautifully crystalline and powerfully antiseptic substance, pheny boric acid $C_6H_5B(OH)_2$, was produced, which upon heating evolved water vapour, and yielded the anhydride C_6H_5BO. It is now shown that diphenyl boron chloride, $(C_6H_5)_2BCl$, is formed when the mono-phenyl compound is heated along with a further quantity of mercury diphenyl to 300–320° in a sealed tube. The product is a mixture of diphenyl boron chloride with mercury chloro-phenyl $Hg(C_6H_5)Cl$, from which latter compound the former may be separated by extraction with an organic solvent. Upon distillation of the extract a liquid is eventually isolated which boils at 270°, and which proves to be pure diphenyl boron chloride. It is a thick colourless liquid which fumes slightly in moist air. Upon heating with water it is decomposed with formation of a substance endowed with an exceedingly powerful and penetrating odour. This substance rapidly collects as an oil upon the surface of the water. After purification by solution in ether and evaporation of the latter it takes the form of a colourless viscous substance, which soon solidifies to a mass of crystals, colourless at first but subsequently faintly yellow. The crystals melt at 264°, evolving the characteristic odour in a still more pungent form. Even the merest trace of the compound is at once rendered evident in a room by its unmistakable effect upon the olfactory nerves. A small quantity introduced into a non-luminous flame imparts a brilliant green colour to the latter. It appears to act as a truly acid substance, dissolving readily in alkalies; the salts produced, however, are not endowed with any great stability, for the acid can be extracted from the solutions by means of organic solvents.

In an appendix to Prof. Victor Meyer's memoir, referred to last week (p. 349), a recent extension of the subject of stereochemistry to purely inorganic elements is alluded to. Dr. Werner, in a treatise upon the nature of the isomerism of the numerous ammoniacal compounds of cobalt, platinum, and other metals, shows that the complex relations of these substances are capable of a surprisingly simple explanation upon the assumption of different arrangements of the various atoms and groups in space. The foundations of a stereochemistry of platinum are laid by assuming the atom of the metal to occupy the centre of a regular octahedron, to the six corners of which the various groups are attached. In this manner the existence of the two isomeric series of complex compounds of the composition $Pt(NH_3)_2X_4$ is accounted for, the difference between them being brought about by a difference in the relative positions of the two NH_3 groups. It would thus appear that the great concentration of research upon the organic compounds, which has been the salient feature of the chemical progress of the last twenty years, has had the fortunate effect of so enlightening us as to the internal structure of chemical molecules as typified in carbon compounds, that the remaining complex problems of inorganic chemistry may now be attacked with much greater likelihood of success.

Notes from the Marine Biological Station, Plymouth.—During the past fortnight the floating fauna has assumed a considerably richer character, chiefly owing to the marked increase in the numbers of Decapod larvæ (esp. *Zoœa*), and to the reappearance of Cœlenterates, which have been very scarce for the past two months. *Ephyræ* of *Aurelia* have appeared, and are already fairly numerous; a few specimens of the Anthomedusa *Rathkea octopunctata* have been observed, and a Leptomedusa, apparently *Phialidium variabile*, has been taken in fair quantity. Some Ctenophore larvæ have also been observed. Prosobranch and Opisthobranch veligers are plentiful, and a single specimen has been obtained of the pelagic postlarval stage of *Arenicola*, discovered at Plymouth last year. Other captures on the shore and with the dredge include *Æolis papillosa*, *Platydoris planata*, and large numbers of *Myzostomum* from *Antedon rosacea*. *Littorina littorea* is breeding.

The additions to the Zoological Society's Gardens during the past week include two Bonnet Monkeys (*Macacus sinicus*, ♀ ♀) from India, presented respectively by Col. J. North, and Mrs. Hewit; a Macaque Monkey (*Macacus cynomolgus*, ♀) from India, presented by Mr. F. Reynolds; a Pinche Monkey (*Midas œdipus*) from New Granada, presented by Miss Farmer; a Banded Ichneumon (*Herpestes fasciatus*), two Vulturine Guinea Fowls (*Numida vulturina*), four Red-bellied Waxbills (*Estrelda rubriventris*), two Madagascar Weaver Birds (*Fondia madagascariensis*), two Alario Sparrows (*Passer alario*) from East Africa, presented by Mr. Besant; a Red-eared Bulbul (*Pycnonotus jocosus*), a yellow-bellied Liothrix (*Liothrix luteus*), three Indian Silver-bills (*Munia malabarica*) from India, a Chestnut-breasted Finch (*Donacola castaneothorax*) from Queensland, two Java Sparrows (*Padda oryzivora*) from Java, two Russ Weaver Birds (*Quelea russi*), a Crimson-crowned Weaver Bird (*Euplectes flammiceps*) from West Africa, two Saffron Finches (*Sycalis flaveolus*) from Brazil, presented by Mr. C. S. Simpson; a Chaffinch (*Fringilla cœlebs*), a Brambling (*Fringilla montifringilla*), a Greenfinch (*Ligurinus chloris*), a Linnet (*Linota cannabina*), three Lesser Redpolls (*Linota rufescens*) British, presented by Mr. L. V. Dance; a Moustache Monkey (*Cercopithecus cephus*, ♀) from West Africa, a Green-winged Trumpeter (*Psophia viridis*) from the Amazons, deposited.

OUR ASTRONOMICAL COLUMN.

A Tempered Steel Meteorite.—Among the many objects collected by the Peary Expedition to Greenland in 1891 was a meteorite weighing about 267 pounds. It was found by Prof. A. Heilprin, near Godhaven, Disco Island, and sent to the Academy of Natural Sciences of Philadelphia, in the Proceedings of which (1893, p. 373) it is described by Mr. E. Goldsmith. When received at the Academy, the meteorite appeared to be solid and devoid of cracks or any signs of disintegration, but this condition soon changed, and the mass slowly cracked and began to fall to pieces. It is thought that this crumbling was due to oxidation resulting from the existence of a higher temperature and a greater quantity of ozone in the latitude of Philadelphia than in that of Greenland. Mr. Goldsmith has examined some of the pieces separated from the mass. The substance could easily be separated into hard, metallic and tough granules, and a powder capable of reduction to any degree of fineness. A determination of the separated quantities gave 73·8 per cent. as the proportion of the granules, and 26·2 per cent. as that of the powder. The specific gravity of the former proved to be 6·14, and of the latter 4·73. One of the pieces from the meteorite was reserved for grinding and etching, but it was found that the process involved considerable difficulty owing to the extreme hardness of the specimen. Indeed, the mass was so hard that it would scratch soft iron, making an impression visible to the eye and sensible to the touch. This and other tests seems to warrant Mr. Goldsmith calling the object a tempered steel meteorite. Possibly the meteorite fell into a pool of water or deposit of snow or ice, and was thus quickly cooled down from the heated condition obtained by rushing through the atmosphere.

Analyses show that there is a distinct difference between the granules and the separated dark powder. The former contains a sulphuret, probably troilite; the latter contains no sulphuret, but, instead, a sulphate. Iron, nickel, sulphur, traces of carbon, chlorine, phosphorus, and chromium were found; also a silicate in which lime and magnesia were recognised. Copper and cobalt were searched for, but in vain. According to Prof. A. E. Nordenskiold and J. L. Smith, the Disco Island terrestrial iron contains copper, cobalt, phosphorus, and comparatively large quantities of carbon. As Mr. Goldsmith remarks, these differences are too great to be overlooked in comparing analytical work; they indicate that the mass found by Prof. Heilprin is not of terrestrial, but of celestial, origin.

Astronomy in Poetry.—Some litterateurs and ultra-sentimental poets affect to believe with Macaulay that the advance of science means the death of poetry. It was left to Lord Tennyson to show that scientific facts admit of the highest poetical expression. Another instance of the exactness of his references to astronomical matters is given in the February number of the *Observatory*. In "Maud" the beautiful lines occur—

> "a time of year
> When the face of night is fair on the dewy downs,
> And the shining daffodil dies, and the Charioteer
> And starry Gemini hang like glorious crowns
> Over Orion's grave low down in the west."

A little further reference is made to the planet Mars, "As he glow'd like a ruddy shield on the Lion's breast." The whole passage refers to the Crimean War, which was from 1854 to 1856, and, from the first quotation, it is evident that Tennyson had in mind the months of April and May. It was interesting, therefore, to see whether Mars occupied in the fifties the position named by the poet. Upon looking up the matter it appears that the planet was in Leo in June 1852, November 1853,